

Chemistry 121A General Chemistry Syllabus, Fall 2017

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Office hours: RNS 318, see <https://www.stolaf.edu/people/hansonr/hours.htm>

Academic help/accommodations: See <http://wp.stolaf.edu/asc/syllabi-statements/>

Required Materials:	OpenStax Chemistry online https://cnx.org/contents/havxkyvS@9.485:uXg0kUa-@4/Introduction
<input type="checkbox"/>	Sapling Learning on-line HW. https://www.saplinglearning.com Required (daily). Two options: a) pay as you go: \$40 (121) + \$20 (123) + \$40 (126) b) multi course discount: \$60 (121/126) + \$20 (123)
<input type="checkbox"/>	MyOpenMath https://www.myopenmath.com Required (weekly/biweekly tutorials in SI); A national study -- \$25 -- we pay YOU!
<input type="checkbox"/>	Equation-Solving Calculator such as TI-89 (~\$100) or TI-36X Pro (~\$20, see below)
<input type="checkbox"/>	Hill and Finster, <i>Laboratory Safety for Chemistry Students</i> , 2 nd Ed. (You can use the 1 st edition. But if you do that, it is your responsibility to determine the differences in the reading assignments, as chapter numbers have changed.) http://www.stolafbookstore.com/CourseMaterials.aspx
<input type="checkbox"/>	<i>Chemistry 121 Laboratory Manual</i> , Fall 2017 (bookstore, when available; before that, see Moodle site) http://www.stolafbookstore.com/CourseMaterials.aspx
<input type="checkbox"/>	Laboratory Research Notebook (Hayden-McNeil, 100 spiral bound duplicate pages) http://www.stolafbookstore.com/CourseMaterials.aspx
<input type="checkbox"/>	ANSI Z87 Safety Goggles (St. Olaf bookstore)
<input type="checkbox"/>	BLUE 6x9 envelope for turning in prelab assignments (\$1, St. Olaf Bookstore)

Subject Matter. Chemistry 121 is an introduction to chemistry for students with little or no background in chemistry who intend to take at least two semesters of chemistry as part of their college studies. Chemistry 121 is designed to be, in conjunction with Chemistry 123I (interim), *Chemical Structure*, a preparation for Chemistry 126, *Energies and Rates of Chemical Reactions*. Students not intending to major in chemistry or go to medical, dental, veterinary, or graduate school may use Chemistry 121 (without 123I) to fulfill GE requirement SED, *however this is not recommended – we have other courses for that.*

Online Book/Homework. This semester we will be using an online book as well as a combination of online homework and written homework. Each class day you will have an assignment (see <https://stolaf.edu/people/hansonr/chem121>) that you will need to print out and complete. It will look a lot like an exam, but it will start with a Sapling assignment and end with a few on-paper problems.

Email and Web Sites. It is very important that you check your St. Olaf email account regularly, as this will be our primary out-of-class mode of communication. Periodically you will receive email from me, or from teaching and lab assistants. Note that if you reply "to all recipients" then your message will be sent to everyone in your section (which you most likely don't want to do). For more permanent information, there are a bunch of locations to go to:

The Chem 121A/Hanson home page: <https://stolaf.edu/people/hansonr/chem121>

Your starting point for everyday schedule and assignments, sample exams, handouts, etc. It has resources that mostly do not change and are open to the public. Kind of like Moodle, but simpler.

The course Moodle page for Chemistry 121A:

<https://moodle-2017-18.stolaf.edu/course/view.php?id=3369>

Your homework, quiz, and exam scores as well as your overall course grade summary will show up here. Check it periodically to double-check that the scores recorded properly reflect your scores. If you think there might be a mistake, such as items turned in not appearing, or grades in error, please catch me during office hours or send me E-mail regarding your concern. I have been known to make mistakes entering scores.

The combined Moodle page for all Chemistry 121 labs:

<https://moodle-2017-18.stolaf.edu/course/view.php?id=4782>

The lab Moodle page is just for lab – weekly prelab assignments (due Sundays at 5 PM), occasional report submission, and grading. In the end, all scores recorded here will be folded into the course Moodle page, but this does not happen automatically.

OpenStax Chemistry (the textbook) <https://cnx.org/contents/85abf193-2bd2-4908-8563-90b8a7ac8df6>

The online textbook we will be using. Two hard-copy versions of this book are in the library on 2-hour reserve, and you can also download the entire book as a PDF if you want to.

Sapling Learning Online Homework:

<https://community.macmillan.com/docs/DOC-5972-sapling-learning-registering-for-courses>

Sign-up is required. For just this course, the cost is \$40. If you intend to continue to CHEM 126, you can get the 121/126 two-course option for \$60. CHEM 123 will involve an additional \$20. This is where you will go to do the online part of the daily homework assignments.

MyOpenMath

<https://www.myopenmath.com/>

Sign-up is required. The cost is minus \$25 (They pay YOU) if you agree to participate in a national study on blended learning and carry through with math pre-test and post-test. Four specific video tutorials and associated learning activities will be utilized in this course as part of the SI program.

Chem 121 Toolkit: <http://stolaf.edu/depts/chemistry/courses/toolkits/121>

The Toolkit page has useful permanent links that are generally useful to Chemistry 121 and is part of a broader set of toolkits for most of the chemistry courses at St. Olaf.

Supplemental Instruction. This course has an SI component. This means that there will be a student SI Leader (Vishwa Patel) who will be sitting in on our section and leading evening or afternoon sessions on Sunday, Tuesday, and Thursday. Attendance at these sessions is **STRONGLY RECOMMENDED**, as they will be coordinated closely with what we do in class and will be focused on specific skill-building activities such as using your calculator, working with scientific notation, significant figures, conversion factors, learning the names and symbols of elements, ions, and compounds, etc. I hope you take advantage of this terrific program.

Laboratory. The laboratory is an integral part of the course, and questions concerning the laboratory will appear on all exams. You earn points toward the lab portion of your Chemistry 121 grade, as summarized in the laboratory manual. **Note that earning 70% (280) of the possible 400 points is required in order to pass Chemistry 121.** Purchase the lab manual, laboratory notebook, safety goggles, safety textbook, and blue half-size envelope from the bookstore as soon as possible. The schedule of experiments is given in the manual. Note that **lab starts the first full week of class and there is a Prelaboratory Assignment including substantial reading due Sunday at 5 PM.** All lab sessions will meet in RNS 350. Labs are 30 points each (5 pt prelab + 25 pt report). See the lab manual for details.

Homework. Homework will be due as you enter the classroom on the day it is listed in the syllabus. Most homework will be graded on the 10-point scale. Problems on these assignments will be a mix of online homework, problems from the back of the chapter, and problems I create myself. Note that for problems you work out on paper, you will not receive credit for anything unless you **show your work**. "Work" includes laying out all steps for any problems that require calculations **carefully showing all units** and, for any problems that do not involve calculations, at least explaining how you arrived at your answer.

Homework assignments will be due at the beginning of class on the day they are listed in the schedule of assignments. Although the homework scoring is listed as being 25 assignments worth 10 points each, really there will probably be more than 25, which means the system will essentially drop a few of your lower scores automatically. The maximum HW score will be 250 points no matter how much it all adds up to. Does that make sense?

I encourage you to work together on homework assignments, but in the end I need to see (a) a handwritten version from each person in the group, and (b) clearly stated at the top the list of people in the group who worked together. Be aware that it is very important that all homework you turn in is **YOUR** work. **Handing in copied homework is plagiarism** that will not be tolerated. There are two evidences of plagiarism that I will use in this course: (a) the answers don't make any sense based on the calculations given, indicating mindless copying, and (b) when asked directly, you don't know how you got your answer. Let's see if we can just not go there, OK?

Exams. We will have four 100-point mid-term exams. You will be assigned a seat based on a seating chart. Please come to class a few minutes early so that you can find your seat. For these exams you may use a calculator such as a TI-36X pro, TI-83, TI-84, TI-85, TI-86, TI-89. All backpacks must be stowed along the wall, not at your seat. Turn your cell phone off, not just on vibrate, because even vibrate mode is rude in the quiet environment of an exam. **DO NOT LEAVE THE ROOM TO COME LOOKING FOR ME DURING AN EXAM.** I will return periodically during the exam asking quietly if anyone has questions. If you must leave the room to use the restroom, collect your exam pages, cover them or turn them over, and quietly make your way out of the room.

Quizzes. There may be occasional in-class quizzes, which will be announced ahead of time. Points earned on these quizzes will count toward the overall exam total for the course. So, for example, if we have a 10-point quiz on a subject, then the next exam will be only 90 points, not 100 points.

Exam review sessions. A day or two before each exam I will hold a special help session in the evening where we can go over specific problems *of your choice* in preparation for the exam (Sunday afternoon or evening for Monday exams, Monday evening for Wednesday exams, and Wednesday evening for Friday exams). The exact time for these review sessions will be decided by in-class vote and/or my constraints.

Note that these are not lectures; I just go with what students in the room say they are interested in working on. Best is if you can come prepared with specific questions from the book or homework or sample exams that you want me to go over with you. I put up old exams as sample exams on the course home page, so feel free to check those out. I don't put up the answers, though. So the way to do these is with a friend or two and discuss them as you go. Come to me if you're stuck or just need a clue. A major goal on these exams is for you to show me how you think your way through a problem. **Be aware that I may deduct a point or two on an exam problem if the answer is correct but I have no clue how you got there, or if your method was not communicated to me in a clear and logical way.** If I do that, you will see written in the margin: "Work?"

Exam Absences. If for any reason (illness or family emergency) you are unable to take an exam at the scheduled time, I must know beforehand. Email is fine. Note that the final exam for Chemistry 121A is scheduled for **9:00 – 11:00 AM, Monday, Dec. 18.** I'm a pretty nice guy, but do not come to me with a story about your parents already having bought airline tickets for you so you have to take the exam at another time. I do not do that. All airline flights can be rescheduled for a charge that is probably worth less than the price of failing a course. If this is a concern of yours, tell your parents NOW what your exam schedule is, so that this problem does not arise. See the St. Olaf web site for details about the College's final exam policy.

Grading. The grading scale is shown on the right. Consider this a starting point. Grading will be by "sliding percentage." By *sliding* I mean that I typically *lower* the B-C and A-B cutoffs a few points in order to give more As and Bs. This is not exactly "grading on a curve," as I promise not to raise the cutoffs as might happen with a true curve. So compete with yourself, not with the others in the class. If I happen to make an exam unexpectedly hard, resulting in a low average, don't worry. I will find a way to give people additional opportunities to gain points. A breakdown of the overall score is shown below:

90-100%	A
80-89%	B
60-79%	C
50-59%	D

Homework	250 pts	25% (25 × 10 pts)
Laboratory	150 pts	15% (0.375 × 400 pts)
Hour exams	400 pts	40% (4 × 100 pts)
Final exam	200 pts	20% (half cumulative)
total	1000 pts	100%

Managing. Schedule Your Time; learn how to study. Chemistry is not a subject that is well-suited to cramming or casual study. You will need to make a determined, steady effort to keep on top of the readings and homework in order to make this all work for you. Here are some tips:

- * Stay ahead. Prior to class each day read the section assigned. Take notes!
- * Before starting each new chapter, take a look at the problems at the end of the chapter, even though they won't be assigned. That's your clue to what's important. Maybe even try a couple just to see what you can do. Then start reading, looking especially for those sections of the chapter that address these sorts of problems.
- * When doing problems – even on-line problems – use plenty of paper. Exams are all on paper, so practicing writing out your answer is excellent practice for taking an exam.
- * Think of your professor as your guide. I'm here to help you focus on what is important, to demonstrate good practices, and to help you in the *communication* skills that go along with learning.
- * Use those office hours. This is the only course I'm teaching, and my door is always open. The hours I post as "office hours" are just the times I guarantee (as best I can) to be here. But outside that time – any time – if you see my door is open, please feel free to stop in. Come introduce yourself! Come with a friend! If you are at all stressed about this course, I can help. It's never too late to come in,

but ideally, sometime in the first couple of weeks perhaps, just swing by and say hello. Let me see if I've connected your name with your face. It's good for me. RNS 318. Right down the hall from our classroom, RNS 310.

- * When you study, consider speaking out loud to yourself. Take off those earphones. Find a whiteboard and maybe, but not necessarily, a friend, and think out loud. It's amazing how much better you can remember something just because you heard yourself say it. *Speaking out loud is a well-documented learning technique used by all pilots, by the way.*
- * A trick you might want to try at the start of an exam: Clear your head by turning the exam over and jotting down on it whatever it is you are most afraid of forgetting. It takes only a few minutes, and you will feel so much better.

As you will soon learn, I love chemistry and I love teaching chemistry. I'm looking forward to a great semester with every one of you. Though you may or may not have my passion for chemistry, I trust you will have a good experience and do your best to get your head around this.

You can do it!

Hope to meet you soon!

-- Prof. Hanson